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| 10/663,549 | 09/16/2003 | Steve Beaudin | 920584-94806 | 2576 |
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| SMART & BIGGAR/FETHERSTONHAUGH & CO. P.O. BOX 2999, STATION D 900-55 METCALFE STREET OTTAWA, ON K1P5Y6 CANADA | | | SUMMONS, BARBARA | |
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| | | | 2817 | |

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,549

Applicant(s)

BEAUDIN ET AL.

Examiner

Barbara Summons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 26, 29, 32 and 33 is/are rejected.
- 7) ☒ Claim(s) 20-25, 27, 28, 30 and 31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR § 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "20", "22", "24", "26", "28", "30", "32", "34" and "36" need to be labeled in Fig. 3 (see discussion on page 12 of the spec.); and "40" (see page 12, line 26) has not been labeled in Fig. 4. However, the "handset" of Fig. 4 should be given a different reference sign (it was given "400" in the parent) because reference sign "40" has been appropriately used in Fig. 8 (see page 13, lines 17-18 of the spec.) and should not also be used to label a different part in Fig. 4 [see 37 CFR § 1.84(p)(4)]. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Additionally, the Notice to File Missing Parts... mailed 12/10/03, included a requirement for replacement drawings which do not appear to have been provided with the response received 2/13/04. Therefore, replacement drawings are required.

Specification

3. The abstract of the disclosure is objected to because the sentence on lines 9-10 does not make sense ("layout comprises are..."?). Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities: On page 1, the first sentence of the specification needs to be changed to include the updated parent application information so that "10/074310" is followed by - - , now U.S. Patent number 6,710,677 - -. On page 13, on line 18, it appears that "filters" should correctly be - - resonators - - (see e.g. line 26). Similarly, on page 13, on line 19, "filters" should be - - resonators - -. On page 13, on line 20, "filters" should be - - resonators - -. On page 13, on line 21, "filters" should be - - resonators - -. Appropriate correction is required.

Claim Objections

5. Claims 2, 4-8, 10, 12, 16, 20-26, 28, 29, 31 and 32 are objected to because of the following informalities:

In claim 2, on line 4, "to anti-resonant" should be changed to either - - to be anti-resonant - - or - - to anti-resonateu - -.

In claim 4, on line 1, "frequency" should be followed by - - band reject - - in order to maintain consistent terminology (see e.g. claims 1 and 3, line 1).

Similarly, in each of claims 5-7, on line 1 thereof, "frequency" should be followed by - - band reject - -.

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In claim 8, on line 5, "to anti-resonant" should be changed to either - - to be anti-resonant - - or - - to anti-resonate - -.

In claim 10, on line 1, "amplifier" should be followed by - - filter - - in order to maintain consistent claim terminology (see e.g. claims 9 and 11, line 1).

In claim 12, on line 1, "an" should be - - a - -.

In claim 12, on lines 4-5, "to anti-resonant" should be changed to either - - to be anti-resonant - - or - - to anti-resonate - -.

In claim 16, on line 4, "to anti-resonant" should be changed to either - - to be anti-resonant - - or - - to anti-resonate - -.

In claim 20, on line 1, "filter" should be changed to - - radio frequency band reject filter - - (see e.g. claims 1 and 3).

Similarly, in claim 21, on line 1, "filter" should be changed to - - radio frequency band reject filter - -.

In claim 21, on line 4, "resonators" should be the singular - - resonator - -.

Also, in claim 21, on line 4, "the series" lacks strict antecedent basis in the claims. Therefore, the Examiner suggests that on line 2, - - series-connected - - be inserted before "SAW" (see e.g. claim 32, line 4).

In claim 22, on line 1, "filter" should be changed to - - radio frequency band reject filter - -.

In claim 23, on line 1, "amplifier" should be followed by - - filter - - (see e.g. claims 9 and 11).

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In claim 23, on line 2, -- series-connected -- should be inserted before "SAW" to provide antecedent basis for "the series" recited on line 4.

In claim 23, on line 4, "resonators" should be the singular -- resonator --.

In claim 24, on line 1, "amplifier" should be followed by -- filter --.

In claim 25, on line 1, -- power amplifier -- should be inserted before "filter" (see e.g. claims 9 and 11).

In claim 26, on line 1, it appears that "shunt" should correctly be -- series -- (see e.g. claims 21 and 23, line 1).

In claim 26, on line 2, -- series-connected -- should be inserted before "SAW".

In claim 26, on line 4, "resonators" should be the singular -- resonator --.

In claim 28, on line 1, "filter" should be changed to -- duplexer -- (see e.g. claims 26 and 27).

In claim 29, on line 1, it appears that "shunt" should correctly be -- series -- (see claims 21 and 23, line 1).

In claim 29, on line 2, -- series-connected -- should be inserted before "SAW".

In claim 29, on line 4, "resonators" should be the singular -- resonator --.

In claim 31, on line 1, "filter" should be changed to -- low noise amplifier input stage -- (see e.g. claims 29 and 30, line 1).

In claim 32, both "the series" and "the transducers", recited on line 3, lack strict antecedent basis in the claim. Therefore, the Examiner suggests that in claim 32, on line 1, -- series-connected -- be inserted before "SAW"; and in claim 32, on line 2, inserting -- comprising a transducer and -- after "resonator".

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Also, in claim 32, on line 3, "resonators" should be the singular - - resonator - - .

Appropriate correction is required.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6,710,677. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the Patent recite all of the limitations in the claims of the instant application plus additionally structure (i.e. the resonators arranged to have "no acoustic resonance over a predetermined pass band" as recited in the Patent claims 1, 8, 12 and 16, the last two lines thereof).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1, 12-14, 16-18, 26, 29 and 32 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ikada U.S. 5,864,262.

Fig. 15 of Ikada discloses a radio frequency band reject filter for rejecting frequencies on the low frequency side outside the pass band of the filter 61 (see e.g. the abstract, lines 7-10), the band reject filter comprising a shunt acoustic resonator 64 that resonates generally at the reject frequency band (see e.g. the paragraph bridging cols. 4 and 5 and see claim 16 where resonator 64 is the third one-port resonator and see col. 13, lines 33-35 and col. 14, lines 48-54) and a series resonator 63 that is anti-resonant generally at the reject frequency band (see col. 4, lines 46-53 and see claim 15, the last paragraph thereof and col. 13, lines 36-42 with col. 12, lines 59-62).

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Regarding claims 12-14, the double mode filter (61) with the band reject filter (63 and 64) of Ikada is disclosed as part of a duplexer for a mobile telephone (see col. 1, lines 12-15; col. 2, lines 7-10 and 16-18; and col. 3, lines 1-3) and the resonators 63 and 64 of the band reject filter are one-port surface acoustic wave (SAW) resonators.

Regarding claims 16-18, the receive side of a mobile telephone duplexer system inherently requires a low noise amplifier (LNA) in order for the device to function adequately (see also other prior art of record as evidence of the inherency, e.g. Frank Fig. 2 applied below).

Regarding claims 26 and 29, the shunt resonator 64 includes a plurality of series-connected SAW resonators 64a and 64b formed on a common substrate (not shown, but see e.g. 22 in Fig. 2) with a shared input/output bus bar between the adjacent resonators 64a and 64b in the series.

Regarding claim 32, Fig. 2 of Ikada, for example, discloses a SAW filter 24 (see col. 6, line 66) comprising a plurality of series-connected SAW resonators 24a-24d formed on a common substrate 22, each resonator sharing an input or output bus bar 33a-33c with an adjacent resonator in the series, whereby the transducers of the resonators 24a-24d are electrically equivalent to a discreetly formed group of series-connected resonators (see col. 7, lines 5-10). That is, the resonator filter 24 is the same as Applicants' filter shown in Fig. 11 of the instant application.

10. Claims 1, 2, 4-6 and 8-15 are rejected under 35 U.S.C. § 102(e) as being anticipated by Frank U.S. 6,489,862.

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Fig. 4 of Frank discloses a radio frequency band reject filter which is an inter-stage band reject filter in a power amplifier for a cellular radio telephone network (see Fig. 2, the abstract, the last four lines thereof and col. 1, line 47), the band reject filter comprising (see e.g. Fig. 7) a plurality of one-port shunt thin film bulk acoustic resonators (FBARs 34 and 36) having a resonant frequency F_B and a plurality of one-port series FBARs (30 and 32) having a different resonant frequency F_A . Regarding claims 5 and 10, the FBARs may also be SAW resonators (see claim 2). Although Frank does not explicitly disclose that the resonant frequency F_B of the shunt resonators and the anti-resonant frequency of the series resonators are in the reject frequency band, in order for the filter in Fig. 7 of Frank to function as a band reject filter the series resonators must inherently provide a high impedance (i.e. be anti-resonant) "generally at" the reject frequency band, and the shunt resonators must inherently provide a low impedance to ground (i.e. be resonant) "generally at" the reject frequency band (see other prior art as evidence e.g. Chen '566).

Regarding claims 12-15, the band reject inter-stage filter of the power amplifier of Frank is as much a part of the duplexer of Frank's Fig. 2, as Applicants' TX reject filter and power amplifier inter-stage filter are a part of the "Duplexer" of Applicants' Fig. 3.

11. Claim 33 is rejected under 35 U.S.C. § 102(e) as being anticipated by Solal et al. U.S. 6,344,705.

Figs. 3 and 5b of Solal et al. disclose a filter comprising a plurality of SAW resonators connected in parallel (see Fig. 3 and col. 4, lines 16-19) on a piezoelectric

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substrate (not shown see e.g. col. 2, lines 21-23), the parallel connected resonators formed of a plurality of SAW transducers (the upper and lower transducers in Fig. 5b), wherein the fingers of one transducer are coupled in series with the fingers of another transducer via a transition zone m1, the transition zone being formed as a plurality of nonparallel elongated conductors. Fig. 5b shows two resonators in parallel, but Solal et al. discloses that more than two resonators may be connected in parallel in this manner (see e.g. col. 6, lines 19-20), and the resonator/transducers at the ends will have the input and output bus bars (see col. 5, lines 36-40).

Allowable Subject Matter

12. Claims 20-25, 27, 28, 30 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yuda et al. JP 10-065490 discloses a SAW band reject filter.

Ushiroku et al. U.S. 5,694,096 discloses connecting series connected resonators with a common bus bar (see resonators 37 and 38 in Fig. 5).

Chen et al. U.S. 5,610,566; Yatsuda U.S. 5,521,453; Seki et al. JP 11-220354; Ichikawa et al. JP 8-65097; Turunen U.S. 5,473,295; and Hickernell U.S. 6,201,457 were all cited by the Examiner in the parent application.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs
November 8, 2004



**BARBARA SUMMONS
PRIMARY EXAMINER**